

Amendments to the Claims:

Claims 1 – 57. (**Canceled**)

58. (**Currently Amended**) A method for encoding data for transmission over a telecommunications network comprising embedding a control data block within a plurality of real data blocks; convoluting real data in each real data block with at least some of the control data in the control data blocks; modulating or transforming the convoluted real data in the real data blocks with one or more sub-carrier signals; and modulating or transforming data in the control data block with every sub-carrier that is used to modulate the real data, wherein each entry of the control data block has a phase angle that is a function of the phase angles of the corresponding entries of the real data blocks.

59. (**Previously Presented**) A method as claimed in claim 58, wherein each of the control and real data blocks has m entries, where m is an integer of one or more, and m sub-carrier transmission channels are provided, and each control data entry and each real data entry are modulated with the corresponding sub-carrier.

60. (**Previously Presented**) A method as claimed in claim 58, wherein the step of convoluting involves phase angle convoluting each entry in each real data block with a phase angle of the corresponding entry in the control block.

61. (**Previously Presented**) A method as claimed in claim 60, wherein the step of phase angle convoluting involves adding the phase angle of each entry of the control data block to the phase angle of the corresponding entry of each real data block.

62. (**Previously Presented**) A method as claimed in claim 61, wherein the convoluted encoded data blocks can be represented by: $X_{nm} = A_{nm} \exp(j(\phi_{nm0} + \phi_{km0}))$, where X_{nm0}

is the original encoded quadrature signal in data block n for sub-carrier m ; ϕ_{nm0} is the original phase angle for data block n and sub-carrier m ; and ϕ_{km0} is the original phase angle for the control data block and sub-carrier m .

63. **(Previously Presented)** A method as claimed in claim 58, wherein each phase angle for the control data in the control data block is randomly assigned.

64. **(Canceled)**

65. **(Currently Amended)** A method as claimed in claim ~~58~~ [[64]], wherein the phase angle of each entry of the control data block is the sum of the phase angles of the corresponding entries of real data blocks.

66. **(Previously Presented)** A method as claimed in claim 65 comprising phase angle convoluting each entry of each data block with the phase angles of the corresponding entries of the other real data blocks.

67. **(Previously Presented)** A method as claimed in claim 66, wherein the step of convoluting comprises subtracting from the phase angle of each real data entry all of the phase angles of all of the corresponding entries of all of the other real data blocks.

68. **(Previously Presented)** A method as claimed in claim 67, wherein the encoding of an N block data transmission can be represented as follows:

$$X_{1m0} = I_{1m0}^c + jQ_{1m0}^c = A_{1m0} \exp(j(\alpha_{1m}\phi_{1m0} - \alpha_{2m}\phi_{2m0} - \alpha_{3m}\phi_{3m0} - \dots - \alpha_{Nm}\phi_{Nm0}))$$

$$X_{2m0} = I_{2m0}^c + jQ_{2m0}^c = A_{2m0} \exp(j(\alpha_{2m}\phi_{2m0} - \alpha_{1m}\phi_{1m0} - \alpha_{3m}\phi_{3m0} - \dots - \alpha_{Nm}\phi_{Nm0}))$$

.

.

.

Appl. No.: 10/549,387
Amdt. dated April 14, 2011
Reply to Office Action of December 14, 2010

$$X_{km0} = I_{km0}^c + jQ_{km0}^c = A_{km0} \exp(-j(\alpha_{1m}\phi_{1m0} + \alpha_{2m}\phi_{2m0} + \alpha_{3m}\phi_{3m0} + \dots + \alpha_{Nm}\phi_{Nm0}))$$

$$X_{Nm0} = I_{Nm0}^c + jQ_{Nm0}^c = A_{Nm0} \exp(j(\alpha_{Nm}\phi_{Nm0} - \alpha_{1m}\phi_{1m0} - \alpha_{2m}\phi_{2m0} - \dots - \alpha_{(N-1)m}\phi_{(N-1)m0}))$$

where the terms α_{nm} ($n = 1, 2 \dots N$) are constants associated with the convolution of each encoded phase angle on the sub-carrier.

69. **(Previously Presented)** A method as claimed in claim 58, wherein the step of modulating comprises frequency modulating the signal.

70. **(Previously Presented)** A method as claimed in claim 58, comprising receiving data for transmission to a receiver, dividing the data into $N-1$ data blocks and embedding a the control data block into the $N-1$ data blocks to provide a N block data transmission.

71. **(Previously Presented)** A method as claimed in claim 58, wherein the control data block is embedded substantially in the middle of the real data blocks.

72. **(Previously Presented)** A method as claimed in claim 58, wherein a plurality of control data blocks are embedded within the real data blocks.

73. **(Previously Presented)** A system for encoding data for transmission over a telecommunications network according to the method of claim 58, the system preferably being a personal mobile communications device or mobile/radio telephone or a computer with telecommunications capabilities or a digital broadcast radio or a digital television or set top box or any wireless networked device.

Appl. No.: 10/549,387
Amdt. dated April 14, 2011
Reply to Office Action of December 14, 2010

74. **(Previously Presented)** A computer program, preferably on a non-transitory computer readable medium, having code or instructions for carrying out the method of claim 58.